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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,331	03/14/2001	Philip J. Lin	TEL4597P0061US	3858
7590 11/13/2003				
WELSH & KATZ, LTD. 120 SOUTH RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			EXAMINER KIANNI, KAVEH C	
			ART UNIT 2877	PAPER NUMBER

DATE MAILED: 11/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,331

Applicant(s)

LIN, PHILIP J.

Examiner

Kevin C Kianni

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-44, 57-66 and 76-80 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 41-44 and 57-66 is/are allowed.
- 6) ☒ Claim(s) 76 is/are rejected.
- 7) ☐ Claim(s) 77-80 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election with traverse of Group I, claims 41-44 and 57-66 in paper 15 is acknowledged. Applicant does not contest, nor state any reason for this traverse, and furthermore the applicant has cancelled the non-elected claims 67-75 in current RCA paper (paper no. 15). This is not found persuasive and the requirement is still deemed proper by the examiner and therefore made FINAL.

2. Allowable Subject Matter/Reason for Allowance

a) claim 41-44 and 57-66 are allowed because of the following reasons:

Claim 41 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious where k^2 separate signal paths in each module couple each input line to a respective output line of each module in combination with the rest of the limitations of the base claim. Claims 42-44 and 57-62 depend to claim 41 and therefore they are also allowed.

Claim 63 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein each $K \times K$ module comprises: a body portion which includes a plurality of $L \times L$ signal coupling networks with $L < K$; K input ports coupled to the body portion; K output ports coupled to the body portion; and a plurality of signal paths, carried by the $L \times L$ signal coupling networks in combination with the rest of the limitations of the base claim. Claims 64-65 depend to claim and therefore they are also allowed.

Claim 66 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious where N1 inputs comprise N1/K group groups of signal carriers coupled to a corresponding number of KxK modules; and where the plurality comprises $(N1/K \times N2/K)$ modules in combination with the rest of the limitations of the base claim.

b) Claims 77-80 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 77 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious the plurality having $(N/K)^2$ members in combination with the rest of the limitations of the base claim.

Claim 78 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious where each KxK interconnect module comprises a second plurality of substantially identical LxL interconnect modules, $L < K$, the second plurality comprises $(K/L)^2$ members in combination with the rest of the limitations of the base claim.

Claim 79 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious the N inputs divided into N/K groups of inputs with K inputs per group coupled to a corresponding number of lxN switches with N switch outputs divided into N/K groups of K outputs, the N/K groups of K outputs per switch are coupled in turn to inputs of N/K members of the plurality of interconnect

modules in combination with the rest of the limitations of the base claim. Claim 80 depends to claim 79 and therefore it is also allowable.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 76 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suemura et al. (US 6243178).

Regarding claim 76, Suemura teaches a signal coupling network to interconnect N inputs to any one of N outputs (shown in fig. 8; see abstract) comprising: a plurality of KxK interconnect modules (see fig. 8, items KxK interconnect signal modules 123), $K < N$ (see fig. 8, items modules 123 are less than N inputs), each module (see fig. 9, item 123) having K^2 inputs 125_{0-3} and coupled to K^2 outputs 131_{0-3} with each input coupled to only one output by a separate optical transmitting waveguide with each waveguide extending only between one input and one output pair (shown in fig. 9, only one waveguide connecting each input 127 to only one output 129; also col. 11, lines 5-33).

However, Suemura does not specifically teach wherein the above waveguide connecting an input to an output is an optical fiber. Nevertheless, Suemura with respect to prior art signal coupling network states that the interconnection between various

inputs/outputs are carried out through optical fibers (see fig. 1, items 73₀₋₃ and 75₀₋₃; see col. 5, line52-53 and col. 6, lines 34-35). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify Suemura's input output modules 123 by replacing their respective optical waveguides with that of conventional optical fibers, such as those of optical fibers 73₀₋₃, in order to produce a signal coupling network that includes the above limitation, since the resultant optical network would provide an optical crossbar switch which is compact and is of low cost (see col. 3, lines 33-35).

Response to Amendment

5. Applicant's amendment filed on August 11, 20003 have been fully considered and the examiner has reexamined the amended claims accordingly.

Regarding applicant's arguments (page 6, 5th parag.) that all pending claims are allowable, the examiner responds that the applicant, except for claim 41, does not specifically state on which limitation(s) of claims the prior art fails to teach.

Regarding applicant's arguments (page 6, 6th parag.-page 8) in allowability of claim 41, the examiner responds that with the new amendment, presently, the claim 41 along with other independent claims, except for the newly submitted claim 76, are allowed.

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Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Cyrus Kianni whose telephone number is (703) 308-1216.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (703) 308-4881.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

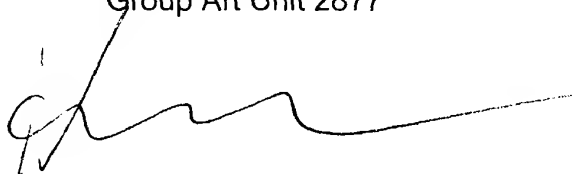
or:

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

Kevin Cyrus Kianni
Patent Examiner
Group Art Unit 2877

November 6, 2003

A handwritten signature in black ink, appearing to be 'K. Kianni', written over a horizontal line.